

ABSTRACT

5 A method for removing a first sorbate having a first desorption activation energy and a
second sorbate having a second desorption activation energy from a sorbent, involves a two-
stage desorber. In a first stage, the first sorbate, second sorbate and the sorbent are contacted
with a stripping fluid having a first temperature sufficient to separate the first sorbate in a vapor
phase from the sorbent. In a second stage, the second sorbate and the sorbent is heated to a
second temperature higher than the first temperature to separate the second sorbate in a vapor
phase from the sorbent. The second sorbate can then be condensed to a liquid phase and sold to
10 offset the costs of the process. Heating in the second phase can be facilitated by the introduction
of microwave or infrared energy for stripping the second sorbate from the sorbent. Use of the
microwave or infrared energy can be facilitated with a purging gas which can also be heated to
function as a stripping gas. An associated apparatus includes two desorption chambers or
alternatively a single desorption chamber for use in both stages.